

# Medical Marijuana for Pain Management

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The American Academy of Pain Medicine can trace back the use of cannabis as a treatment of pain for longer than recorded history. In 1996, California became the first state to legalize medical marijuana, but national legal prohibitions and the complex pharmacology of cannabis have slowed the progression of empirical evidence and standardization for clinical use. Despite the delays to research, there is evidence to suggest that 10-15% of people who attend treatment at a chronic pain clinic also use marijuana as part of their pain management. The number of patients using marijuana for pain grows when we consider how common it is for patients to self-medicate or decline to report use. In this article, I will answer common questions regarding the utilization of cannabis for pain management.

## ***How does it work?***

One difficulty in studying and standardizing cannabis for medical use is that there are more than 60 pharmacologically active cannabinoids in marijuana; therefore the exact mechanisms of its efficacy are still unclear. These many cannabinoids activate receptors in the brain, spinal cord, peripheral nerves, and immune system, explaining why it can be effective in treating both pain and inflammation. Different active components are beneficial for different types of symptoms. The two primary cannabinoids are tetrahydrocannabinol (THC) and cannabidiol. The THC component can produce euphoria and psychosis. Cannabidiol is not psychoactive, but it may have antianxiety and antipsychotic effects. This ratio between THC and cannabidiol is important for patients to know, and marijuana types are specifically engineered to hold different ratios.

## ***What are the benefits of marijuana over other medications?***

While marijuana does have side effects (discussed below) it can be used beneficially to reduce the more dangerous side effects of other medications for pain management. There is currently a national epidemic of opioid abuse, and patients may choose to use cannabis instead of opioids or in addition to opioids. Cannabinoids do not bind to opioid receptors, so concurrent use is a safe option. Evidence suggests that using cannabis in addition to prescribed opioids can prevent tolerance and withdrawal from opioids as well as enhancing the effectiveness of both therapies. Even for milder pain or in cases where opioids are not prescribed, cannabis can replace non-steroidal anti-inflammatory drugs (NSAIDs) in order to avoid the negative side effects of gastrointestinal ulceration and bleeding.

### ***What is the evidence of its efficacy?***

Cannabis has been seen to be effective to varying degrees for several types of chronic pain. For example, neuropathic pain is typically a difficult kind of pain to treat because it is caused by damage to the somatosensory nervous system. Neuropathic pain is often compared to a dysfunctional alarm system. Where other pain would be compared to a fire alarm that is triggered by an actual fire that needs to be addressed, neuropathic pain is an unhelpful and annoying alarm that you can't turn off. Neuropathic pain is thought to be at least partially caused by a dysregulation of the body's endocannabinoid system, explaining why marijuana is seen to be a particularly effective treatment.

There is also evidence of cannabis being effective for chronic pain resulting from multiple sclerosis and paraplegia. Additionally, the many effects of cannabis beyond pain relief (e.g., euphoria, increased appetite) are especially beneficial for people with complex disorders such as AIDS or cancer. Musculoskeletal pain and migraine pain are less researched, but there is evidence that cannabis can influence the pain pathways of those disorders by reducing hyperalgesia, which is heightened pain sensitivity.

### ***How can my patients use it in a safe and legal way?***

Unfortunately there are only two FDA-approved, synthetic cannabinoids available in the U.S., dronabinol and nabilone, and these are approved only for reducing nausea. The benefit of an FDA-approved cannabinoid is that the doses are highly standardized and well understood. Most patients use botanical, rather than synthetic, cannabinoids for chronic pain, meaning there could be variability in the dosing and unknown side effects due the large number of pharmacologically active components. There are some preparations of cannabinoids available that are recommended for particular types of pain, e.g., for pain symptoms of multiple sclerosis, the American Academy of Neurology recommends off-label use of dronabinol (the FDA-approved preparation mentioned above) and nabiximols, a spray containing both THC and cannabidiol. Patients and providers can research the best types of cannabis for specific pain conditions.

Medical marijuana cards are available to patients with a doctor's recommendation for medical use, but because recreational use of marijuana became legal in the November 2016 election, patients may choose to use marijuana without obtaining a card. Benefits of having a card include looser restrictions on marijuana possession (e.g., 1 oz. in possession for recreational users vs. 8 oz. for card holders).

Unlike with alcohol, there is no standardized way of defining when someone is capable of driving after use of marijuana. A DUI can still be issued to someone who used marijuana before driving, if they do not demonstrate an "ability to drive with the caution characteristic of a sober person of ordinary prudence under the same or similar circumstances." Therefore a combination of subjective and objective data is taken into account, including the observed driving pattern, performance on behavioral sobriety tests, physical appearance, and a blood test confirmation of marijuana use.

***What are the dangers, and how can I minimize risk?***

It is important to note that many common mental health diagnoses are listed as contraindications to the use of marijuana for pain management in formal medical recommendations (e.g., see *JAMA* review in Recommended Reading) because “heavy” use of cannabis is seen to be related to future onset of depressive episodes, manic episodes, and psychosis. There are extreme limitations of the research, however, with differing definitions of what is considered “heavy use” and without randomized controlled trials that are able to comment on causation. Currently, all evidence is merely associations between cannabis use and poor mental health outcomes. The strongest caution is against the use of cannabis (particularly with high THC) for people with a strong genetic risk for psychosis.

According to the DSM-5, symptoms of cannabis intoxication include tachycardia, dry mouth, elevated appetite, red eyes and unusual fluid accumulation in the eyelids, and psychological and behavioral impairments, which can include anxiety and paranoia, along with hallucinations. Contrary to some patients’ opinions/perceptions, marijuana is now widely accepted as addictive and has distinct patterns of withdrawal, with symptoms including: irritability, anger, sleep difficulty, anxiety, depressed mood, restlessness, headaches, fever, chills, sweating and abdominal pain. Of note, many patients see cannabis as beneficial for their sleep because it can be sedating immediately following use, however it is important to educate patients with sleep problems that insomnia is a primary symptom of withdrawal, and there is evidence that cannabis changes sleep architecture, reducing REM sleep and increasing sleep onset latency.

*Recommended for Further Reading*

California Medical Association: Physician Recommendation of Medical Cannabis

Hill, K. P. (2015). Medical marijuana for treatment of chronic pain and other medical and psychiatric problems: A clinical review. *JAMA*, 313(24), 2474-2483.